A STUDY OF DAIRY ENTREPRENEURSHIP IN RURAL AREAS: SOCIO-ECONOMIC IMPACT, CHALLENGES AND PROSPECTS

A

Synopsis

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SECTION 1: INTRODUCTION

Rural India calls itself home to two-thirds of India's population and contributes approximately 46 percent to our national income. It is now difficult for marginal farmer to take out a living from just agriculture income. The average monthly income of rural households is Rs. 8,059/- with agriculture households deriving only 43 percent of their income from agriculture, most of it from daily wage labour and government jobs. While agricultural households typically had a higher income than non-agricultural households, they had higher debt on average (Rs. 1,04,602/- and Rs. 76,731/- respectively) **(NABARD, All India Rural Financial Inclusion Survey 2017)**

Under these circumstances, there in an urgent need to look at alternative sources of income. It needs to embrace non-farm diversification that empowers landless labourers and marginal farmers. Non-farm employment options can aid the rural poor in overcoming barriers to economic prosperity. India's rural development policies should focus on infrastructure and institutions, value-added products and on developing markets that can develop sectors like livestock and dairying. Nearly three-quarters of milk sold in India is in liquid form. However, in developed countries about 60% of the liquid milk is sold in value-added forms. Rural workers should also be provided with training and skilling in their areas of interest, as it could lead to higher earning and credit-worthiness. In this respect, the livestock and dairying sector can offer significant opportunities for bolstering non-farm income. Dairy Technology can improve the lives of Indians across rural and urban India. It will impact the bottom of the social pyramid. The dairy entrepreneurship will create fresh opportunities that must be harnessed if India's growth story is to truly take roots. We need to explore the ways in which we can increase the farmer's income. It is high time to strategically unleash the economic potential of rural India. The studies have revealed that the dairy entrepreneurship contributes significantly to the socio-economic development of the rural poor **(Ashish Kumar Parashari, 2016).**

India is unique having six lakh villages. India is witnessing a monumental change with internet reaching most of the rural India and evolution of rural markets and entrepreneurship. There is an urgent need to understand the rural producer-consumer relationships at the grass root level and upskill young talent in rural livestock and dairy management. This is going to be turning point for Indian economy and shaping the future of rural India. It can improve the standard of individual livelihoods

and creating incremental jobs in small entrepreneurial activities by paying special attention to women members (who are about 1.3 million).

About 72.3 percent of the population in the state of Madhya Pradesh lives in villages. There is no raise in rural income in Madhya Pradesh, Chhattisgarh and Rajasthan. Wages in the countryside is depressed and income from crops is insufficient **(Economic Times analysis, December 13, 2018)**. Things have turned worse for rural areas since end of 2014. Rural wage growth recorded significant deceleration and is one of the causes for rural distress **(RBI working paper, 2014)**. Many crops are not still covered by Minimum Support Price and farmers are not getting reasonable incomes consistently. Rural wages have stagnated and farm price realization has been inconsistent

It is therefore essential to explore alternative non-agriculture/non-weather based sustainable sources of income to diversify the risk undertaken by the rural farmers today. Dairy entrepreneurship may prove to be a very good alternative which has a lot of potential in Madhya Pradesh. The small landholders and marginal farmers have been dependent on seasonal agricultural operations which mostly fail to provide the year round income.

SECTION 2: REVIEW OF LITERATURE

A detailed review of literature and previous researches was carried out to understand the various variables and factors affecting a dairy enterprise. The literature has been classified in to separate categories to develop a structured understanding of the subject.

The literature was classified under following categories:

- **Critical Components of Dairying**
- **Research Methodology**

2.1 On the Basis of Critical Components of Dairying

The studies related to dairy entrepreneurship can be classified in to following categories:

2.1.1 Role of Dairying in Socio-economic Development of Rural Entrepreneurs.

Under this stream studies related to the socio-economic conditions of the people engaged in dairy activities and how far the dairy development schemes are able to create employment and earning prospects for small and marginal farmers and rural landless households, are included. The rise in digitization has ignited the aspirations of rural entrepreneurs and created a strong impetus to the

growth and longevity of rural micro business. The size of the rural market is growing exponentially larger than ever. It necessitates the need to explore the ways in which we can improve a farmer's income, and unleash the economic potential of rural India. The evolution of rural markets in India has opened up innumerable marketing opportunities and the ways in which we can connect better the rural India with the urban conglomerate. Two-third of the consumer base of this country resides in rural India (nearly, three million farmers). Dairy farming plays a critical supplementary role to agriculture ensuring a cushion against the vagaries of the monsoon. The markets in the rural India are contributing to the progress of the nation. **(Maurice Landes, 2017).**

The dairy sector provides nearly 80 million farm households with the triple benefit of nutritive food, supplementary income and productive employment for family labour, mainly for women. Dairying is closely associated with the socio-economic fabric of rural people in India. It is difficult to explain many aspects of small-scale farmer's household behaviour in respect to livestock from an economic and rational point of view. Consequently, treating livestock production system as a pure input output type of economic system often misrepresents the Indian reality (GOI, 1996). Dairying provides a support system to milk production without disturbing the agro-economic systems **(O.P. Sinha, 2007)**.

It is estimated that up to 60-65 percent of the income of this group (marginal and small-scale farmers) now comes from dairying. Over the period, dairying has also acquired the contours of full-fledged industry in the country and has positively improved the life of those engaged in this business, directly or indirectly, bringing significant socio-economic changes **(Shukla and Brahmankar, 1999)**.

In the state of Assam, most of the informal milk market agents are small traders and derive substantial portion of their household income from it. The scale of their business continues to be low, though the returns from the milk marketing seem to be comparable with or higher than the prevailing wages for an unskilled worker. Thus, milk marketing (fresh or processed) provides more lucrative returns **(Anjani Kumar, 2010).**

To strengthen the rural economy, animal husbandry comes next to agriculture and dairying offers vast employment potentials as a supplementary means not only to farmers but also to the landless artisans engaged in different rural industries. To these dairy products also offer employment to many **(Krishnama Raju and Seshaiah, 1990).**

The dairying is the very important subsidiary occupation to raise the family income along with crop production particularly for small and medium farmers. Small farmers realized greater income with low cost of milk production in all types of animals than medium and large farmers even though operating cost was on the higher side in this category comparatively. As returns were much higher in the small and medium farms, it was better supported by family income **(Kiresur, 2002)**

In a study conducted at Moradabad district in Uttar Pradesh, the literacy among dairy workers, average income of households, participation of women, generation of annual income and has increased in dairy farming. This made a significant contribution in the socio-economic development in the area **(Ashish Kumar Parashari, 2016).** Similar results were revealed in another study conducted at the Narmada District in Gujrat **(Patel Bhavnaben, Kashinathbhai, 2019)**. Another study showed that over all entrepreneurial behaviour of women dairy farmers changes if their occupation shifts from agriculture to dairy. One unit increase in education, occupation, extension participation, extension agency contact, economic motivation and scientific orientation the entrepreneurial behaviour would increase by 1. 296, 5.725, 4.010, 1.556, 2.477 and 2.032 times respectively while keeping other variables constant **(Mariammal, R, 2019).**

2.1.2 Role of Technological Interventions in Dairying.

India is the world's largest producer and consumer of milk and has the world's largest dairy herd (buffalo and crossbred cattle). Annual growth in milk production and consumption has been around 4.2 percent since 2000 and India has also emerged as a small net exporter of dairy products. Buffalo and cross bred cattle account for all the growth in the dairying. However, average milk yields remain well below the international standards and those achieved under domestic best practices. Future production prospects depend heavily on productivity gains primarily through improved breeding and feeding practices, improved infrastructure, and skill empowerment and entrepreneurship **(Jerry Cessna, Lindsay Kuberka and Keithly Jones, 2017).** The milk producers have realized the importance of holding the hybrid cow and high productivity buffaloes for more milk and dairy business **(Anand Lodade, 2006).** A study examined the data on Lactation effect over milk yield. Bull sets vs. seasons and seasons vs. lactation is observed. Lactations 1, 2, 3, 4, 5 and above are considered in their study. The milk yield increases from lactation to lactation up to certain stage, the production of

milk yield get constant from 5th & above lactations. The production of milk yield is high from December to March when compare to the other months **(Koteswara Rao, 2009).** Milk production can be improved substantially with minimum cost through crossbreeding in case of cows and selective (upgrading) breeding in case of buffaloes, scientific and least-cost effective feeding practices, prevention and control of disease measures and judicious management apart from assured market for milk **(Surya Murthi, 2001).** The crossbreeding of cows should be carried out on all the irrigation zones of the country, while grading up of buffaloes with Murrah breed should be limited to high irrigation and medium irrigation zones **(Mallikarjuna Reddy, 2001).**

Establishment of fodder banks, improved facilities of veterinary and health care services, banking services, dairy cooperatives for realizing remunerative prices are crucial for dairy development **(Dixit, 2006)**

The quantities of dry fodder, green fodder and concentrates, number of lactations, labour hours and the age of the animals had together contribute more than three-fourths of the variations in the milk yield among marginal, small, medium, large and big farmers. There is a possibility of increasing milk yield by further use of green fodder and concentrates **(Sambasiva Rao, 1985).**

Milk production in India is the result of efforts by marginal producers and small holders; they constitute the core milk production group and own 66 percent of milch animals. The popularity of large ruminants (cattle and buffalo) with this class of landholders is primarily because of the 'complementary' between land and animals in their traditional crop-livestock farming system. The animals subsist largely on the free crop-residuals / crop by-products available in the households and in return contribute dung for fuel and for enriching the soil, and farm drought power for crop production. With increasing integration of farm households in the output markets, cattle and buffalo also generate substantially dairy incomes for the farm households enhancing the viability of both the household and farming system. Dairy production also enables them to utilize idle family labour and enjoy higher family nutritional standards **(National Sample Survey Office, 1992)**.In the developed dairying countries such as USA, Dairy Technology arrived in the year 1850 and transformed the farm production to factory-scale production. The rural areas were identified for milk production and the urban areas were selected for the location of milk processing plants and product manufacturing

factories. Improved machinery and equipment resulted in large scale production. This heralded the advent of dairy technology, entrepreneurship and marketing in those countries. In India, dairying has been practised as a rural cottage industry since the remote past. During the British rule of India, military dairy farmers and cooperative milk unions were established throughout the country by the end of the 19th century. They were of semi-commercial nature. However, market milk technology in India commenced in 1950, with the functioning of the Central Dairy of Arey Milk Colony and milk product technology in 1956 with the establishment of AMUL Dairy, Anand, Gujrat. The Indian Dairy Industry has made rapid progress since independence. The organized dairies have been successfully engaged in the routine commercial production of pasteurized bottled milk and various western and India dairy products **(Sukumar De, 1991).**

In another study it was revealed that a large number of the Managers of the Dairy believe that they need smarter technological solutions to expand their milk procurement & distribution base (Pandit, Samir Satishkumar, 2019)

2.1.3 Role of Cooperatives in Dairy Entrepreneurship

The cooperative dairying is an agency, which carries on production and marketing of milk and milk products on behalf of the producers who are unable to earn even the marginal profit. In India cooperative dairying is another productive activity, which is the most outstanding form of agricultural operation. **(Mahfoozur Rahman, 2003).** Dairy has been an important and traditional subsystem under mixed farming in India. Until the turn of the twentieth century, dairying was by and large a traditional subsistence-oriented occupation with the main objective of producing milk, only to meet home consumption requirements. Modern milk processing and marketing technologies were introduced in India during the early 1920s, when a number of military farms were established. The process of modernization and market orientation of the India Dairy industry continued step by step until 1969-1970, when the National Dairy Development Board (NDDB) of India launched world's biggest dairy development programme **'Operation Flood'**, based on the success of the Kaira District Cooperative Milk Producer's Union Limited, Anand, popularly known as AMUL. Launching of 'Operation Flood' was an important and significant landmark in the history of Dairy development in India. 'Operation Flood' was basically a market-oriented programme aimed at modernization and development of the

India Dairy industry on **'cooperative'** lines. Operation Flood resulted in significant socio-economic changes and developments in the rural community **(Food and Agricultural Organization of the United Nations, 2007).** The Dairy Cooperatives produce both 'Public Goods' and 'Private Goods'. They provide excludable benefits and non-excludable benefits for members. Excludable benefits can be offered in a way that only members can consume them. Those members who use the benefits pay the cost of producing them and only they benefit. All producers regardless of whether or not they pay the costs incurred by the cooperatives can consume non-excludable benefits-once produced. The most interesting and significant effects of the milk cooperatives in India are social changes that the movement has ushered. Since these cooperatives are governed only by a democratic system, it has not only inculcated in the farmers a more democratic approach to life's problems, but also increased their awareness of their rights in society **(Vinay M.R. and Manjappa D.H., 2004).**

Today dairy cooperatives have assumed new strategies for rural development and creating the different measurements for social sustainment. In the generation of employment and income opportunities are also possible with the dairy industry **(Sultana, Tarahum, 2019).** The milk cooperative societies are more successful in remote areas where there is no better alternative to those nearer to town or city **(Tiwari and H.P.S. Arya, 2001).**

The dairy industry was reserved for cooperatives and protected until the 1990s. Milk procurement and processing and supply to urban consumers was generally in the hands of the cooperative sector. The entry of the private players in the processing sector was restricted through the licensing system. Some of the subgroups of the dairy industry were reserved in the small scale sector. The economic reforms introduced in 1991 brought major changes in the dairy industry; the industry was liberalized and opened for private participation and private investment, foreign capital and new technology were allowed. Further, all the milk products, except malted foods are covered in the category of industries for which foreign equity capital participation up to 51 percent is automatically allowed. The dividend-balancing and export obligation conditions, which applied to 22 consumer foods industries including dairy products, were withdrawn in 2000 **(World Trade Organization, 2002).**

2.1.4 Challenges and Prospects of Dairying in Rural areas

In the present circumstances the primary concern of the dairy enterprises is not with production but value addition and marketing. The challenges they face are from within and from the newer players that have started entering their new areas. Studies suggest that the future depends on whether the cooperatives are able to transform themselves into self-reliant and mutually aided units in which the members fare quick enough to adapt and adjust to the changing business environment **(Sanjeev Chopra, 2004).** While there are great opportunities thrown upon dairy development, the challenges faced by dairy sector also varied. They also emphasized the needs of additional efforts to meet the challenges. Serious efforts are needed to be made towards judicious control of dairy cattle population, extending the existing A.I. network and improve its quality of service, strong extension linkages and input delivery system through extension support, genetic up-gradation of cattle to enhance productivity, improvement in quantitative and qualitative availability of feed and fodder, control of epidemics, adequate budgetary support, revising of milk pricing at regular intervals and effective procurement network **(Bhanj and Hema Tripathi, 2004)**

Lack of good condition of road, faulty system of weights and measurement and testing of milk, exploitation by middleman, functioning of DCS merely as a milk collection centre, delay in payment, etc., are the most prominent problems faced by the dairy entrepreneurs today **(Directorate of Economics and Statistics, Ministry of Agriculture, 1997).** One of the studies that examined the challenges in the Indian Dairy Industry explained the key areas of concern of dairy industry as (i) Competitiveness, cost of production, productivity of animals etc, (ii) Production, processing and marketing infrastructure, (iii) Focus on buffalo milk based speciality, (iv) Import of value-added products and export of lower value products **(Karmakar K.G and G.D. Banerjee, 2006)**

The lack of awareness in rural areas about clean milk production is further accentuated with obsolete technology when compared to the West. Such factors related to hygiene reduce the quality of our milk products resulting in low demand for our dairy products in the world market **(Adirvel, 2002)**

Dairy farming has been developing in the rural areas, however, there are still problems of absence of dairy co-operatives, absence of veterinary facilities, insufficient fodder and feed, connectivity and accessibility, lack of standard pricing, lack of storage and processing facilities, lack of credit facilities, exploitation by milkmen, lack of technological adoption and lack information **(Ashish Kumar**

Parashari, 2016). A study conducted at Nagaland proposed improvements in dairy marketing services to enhance the livelihood levels **(K. Avele Thirah, 2016).** The key problems encountered by dairy farmers include exploitation by middlemen, lack of extension workers for motivation, non-availability of green fodder, inadequate knowledge in cattle management, delay in payment, social dogma, lack of knowledge about heat detection, lack of support from elders, repeated breeding problems, lack of good condition of road, distant location of AI centre **(S.A. Sankaran, 2018).** The dairy Industry in India is going through major changes with the liberalization policies of the government and the restructuring of the economy. Indian dairy industry is heading towards an accelerated and positive momentum **(Dang, Neeta Sapra and Gursharan Kaur, 2004)**

2.2 On the Basis of Research Methodology

2.2.1 Descriptive Research. The purpose of the descriptive research is to describe the characteristics of the population under study. It focuses on "what" of the subject matter. The purpose of descriptive research is to describe, as well as explain, or validate some sort of hypothesis or objective when it comes to a specific group of people. The descriptive studies are also of two types:

- Survey based
- Case-study based

2.2.2 Analytical Research. In analytical research the already available facts and information is used to make a critical evaluation of the subject. It attempts to explain why and how and whereas descriptive research mainly focuses on what.

2.2.3 **Exploratory Research.** This type of research is carried out for a problem that has not been studied more clearly and is intended to establish priorities, operational definitions and improve the final design.

The review of literature categorised basis of above types of research methodology has been shown in Table 1 under various categories.

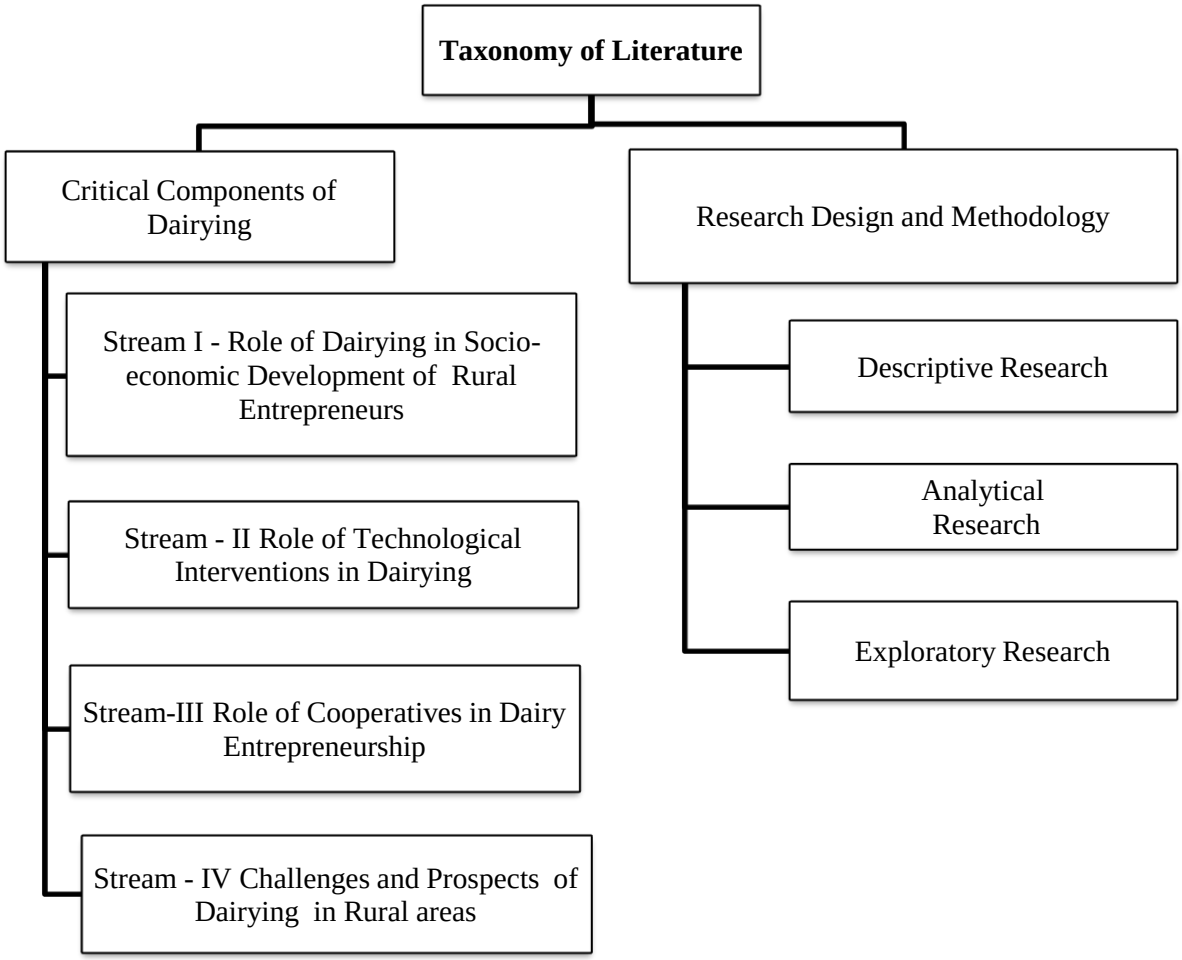
Taxonomy of Literature
Critical Components of Dairying
Research Design and Methodology
Stream I - Role of Dairying in Socio-economic Development of Rural Entrepreneurs
Stream - II Role of Technological Interventions in Dairying
Stream-III Role of Cooperatives in Dairy Entrepreneurship
Stream - IV Challenges and Prospects of Dairying in Rural areas
Descriptive Research
Analytical Research
Exploratory Research

Figure 1: Taxonomy of Literature Review

S.N.	Author	Role of Dairying in Socio-economic Development of Rural Areas							Technological Interventions in Dairying				Role of Cooperatives in Dairying			Challenges and Prospected of Dairying in Rural Areas									Methodology		
S.N.	Author	Literacy among Dairy workers	Average household income	Milk retention at home	Participation of women	Participation of small and marginal farmers	Generation of year round income	Increase in number of cattle	Breeding	Feeding	Processing	Veterinary and health care	Benefits to members	Benefits to non-members	Social Benefits	Connectivity	Exploitation by middle men	Poor productivity and yield	Availability of feed and fodder	Lack of Skill Development	Technological Adoption	Credit Facilities	Marketing Issues	Adulteration and Quality Issues	Lack of value addition	Descriptive	Analytical	Exploratory
1	Pandya, Samirkumar B (2019)		√			√			√	√	√					√					√	√	√				√	
2	Pandit, Samir Satishkumar (2019)	√											√	√	√	√					√	√	√			√		
3	Mariammal, R (2019)	√	√	√	√	√	√	√					√	√	√		√			√						√		
4	Patel Bhavnaben, Kashinathbhai (2019)	√	√	√	√	√									√	√	√			√		√	√			√		
5	Sultana, Tarahum (2019)	√	√	√	√	√	√								√	√	√			√		√	√			√		
6	Sankaran S. A (2018)	√	√	√	√	√	√	√					√	√	√					√	√	√	√	√		√		
7	Maurice Landes (2017)		√			√	√		√	√						√			√		√				√	√		

S.N.	Author	Role of Dairying in Socio-economic Development of Rural Areas							Technological Interventions in Dairying				Role of Cooperatives in Dairying			Challenges and Prospected of Dairying in Rural Areas										Methodology		
		racy among Dairy workers	Average household income	Milk retention at home	Participation of women	Participation of small and marginal farmers	neration of year round income	Increase in number of cattle	Breeding	Feeding	Processing	Veterinary and health care	Benefits to members	Benefits to non-members	Social Benefits	Connectivity	Exploitation by middle men	Poor productivity and yield	vailability of feed and fodder	Lack of Skill Development	Technological Adoption	Credit Facilities	Marketing Issues	dulteration and Quality Issues	Lack of value addition	Descriptive	Analytical	Exploratory
8	Sinha, O.P (2007)	√	√		√	√	√									√										√		
9	Shukla and Brahmankar, (1999)	√	√	√	√	√	√	√																			√	
10	Anjani Kumar (2010)		√		√	√	√				√	√			√	√		√			√				√	√		
11	Krishnama Raju and Seshaiah, (1990)		√		√	√	√											√	√							√		
12	Kiresur, (2002)		√	√	√	√	√	√								√		√	√	√						√		
13	Jerry Cessna, Lindsay Kuberka and Keithly Jones, (2017)								√	√	√	√				√		√	√	√	√			√	√	√		
14	Anand Lodade, (2006)		√	√					√	√		√						√	√		√							√

		Literacy among Dairy workers	Average household income	Milk retention at home	Participation of women	Participation of small and marginal farmers	Generation of year round income	Increase in number of cattle	Breeding	Feeding	Processing	Veterinary and health care	Benefits to members	Benefits to non-members	Social Benefits	Connectivity	Exploitation by middle men	Poor productivity and yield	Availability of feed and fodder	Lack of Skill Development	Technological Adoption	Credit Facilities	Marketing Issues	Adulteration and Quality Issues	Lack of value addition	Descriptive	Analytical	Exploratory
15	Koteswara Rao, (2009)			√					√	√		√						√	√		√						√	
16	Surya Murthi, (2001)		√				√	√	√	√		√						√	√		√						√	
17	Mallikarjuna Reddy, (2001)								√	√		√							√	√		√				√		
18	Dixit, (2006)								√	√		√	√	√				√	√			√				√		
19	Sambasiva Rao, (1985)							√	√	√	√	√				√			√	√	√					√		
20	Sukumar De, 1991					√		√	√	√	√	√				√	√	√	√	√	√			√	√		√	
21	Mahfoozur Rahman, (2003)			√	√		√							√	√	√	√	√			√	√					√	
22	Vinay M.R. and Manjappa D.H., (2004)		√	√		√	√				√		√	√	√	√	√					√					√	
23	Tiwari and H.P.S. Arya, (2001)		√			√	√						√	√	√	√	√				√						√	
S.N.	**Author**	**Role of Dairying in Socio-economic Development of Rural Areas**							**Technological Interventions in Dairying**				**Role of Cooperatives in Dairying**			**Challenges and Prospected of Dairying in Rural Areas**										**Methodology**		

S.N.	Author	Role of Dairying in Socio-economic Development of Rural Areas							Technological Interventions in Dairying			Role of Cooperatives in Dairying			Challenges and Prospected of Dairying in Rural Areas										Methodology		
		racy among Dairy workers	Average household income	Milk retention at home	Participation of women	Participation of small and marginal farmers	neration of year round income	Increase in number of cattle	Breeding	Feeding	Processing	Veterinary and health care	Benefits to members	Benefits to non-members	Social Benefits	Connectivity	Exploitation by middle men	Poor productivity and yield	vailability of feed and fodder	Lack of Skill Development	Technological Adoption	Credit Facilities	Marketing Issues	dulteration and Quality Issues	Lack of value addition	Descriptive	Analytical	Exploratory
24	Sanjeev Chopra, (2004)		√				√								√	√					√	√	√		√	√		
25	Bhanj and Hema Tripathi, (2004)															√		√	√	√	√	√	√	√	√	√		
26	Karmakar K.G and G.D. Banerjee, (2006)								√	√	√							√			√	√	√	√	√	√		
27	Adirvel, (2002)		√				√		√									√		√	√		√	√	√			√
28	Ashish Kumar Parashari, (2016)	√	√	√	√	√	√	√	√	√		√					√	√	√	√	√	√			√		√	
29	K. Avele Thirah, (2016)																√			√	√	√	√		√		√	
30	S.A. Sankaran, (2018)															√		√	√	√	√	√	√	√		√		
31	Dang, Neeta Sapra and Gursharan Kaur, (2004)		√				√					√			√					√	√		√			√		

Exploratory					
Analytical					✓
Descriptive	✓	✓	✓	✓	
Lack of value addition			✓		
Adulteration and Quality Issues		✓	✓		
Marketing Issues		✓		✓	✓
Credit Facilities	✓			✓	✓
Technological Adoption	✓		✓		
Lack of Skill Development	✓	✓			✓
Availability of feed and fodder	✓		✓		
Poor productivity and yield			✓		✓
Exploitation by middle men	✓			✓	✓
Connectivity		✓			✓
Social Benefits	✓	✓		✓	
Benefits to non-members	✓	✓		✓	
Benefits to members	✓	✓		✓	✓
Veterinary and health care					
Processing			✓		
Feeding					✓
Breeding					✓
Increase in number of cattle					
Generation of year round income			✓	✓	✓
Participation of small and marginal farmers		✓	✓	✓	✓
Participation of women					
Milk retention at home			✓		✓
Average household income	✓	✓	✓		✓
Literacy among Dairy workers					
	Debnarayan Sarker and Bikash Kumar Ghosh, (2010)	Vijay Gorakh Patil 2010	Shiv Raj Singh and K.K. Datta (2010)	Ganga Devi and D.K. Jain, (2011)	Shantanu Kumar and Uma Sah, (2000)
	32	33	34	35	36

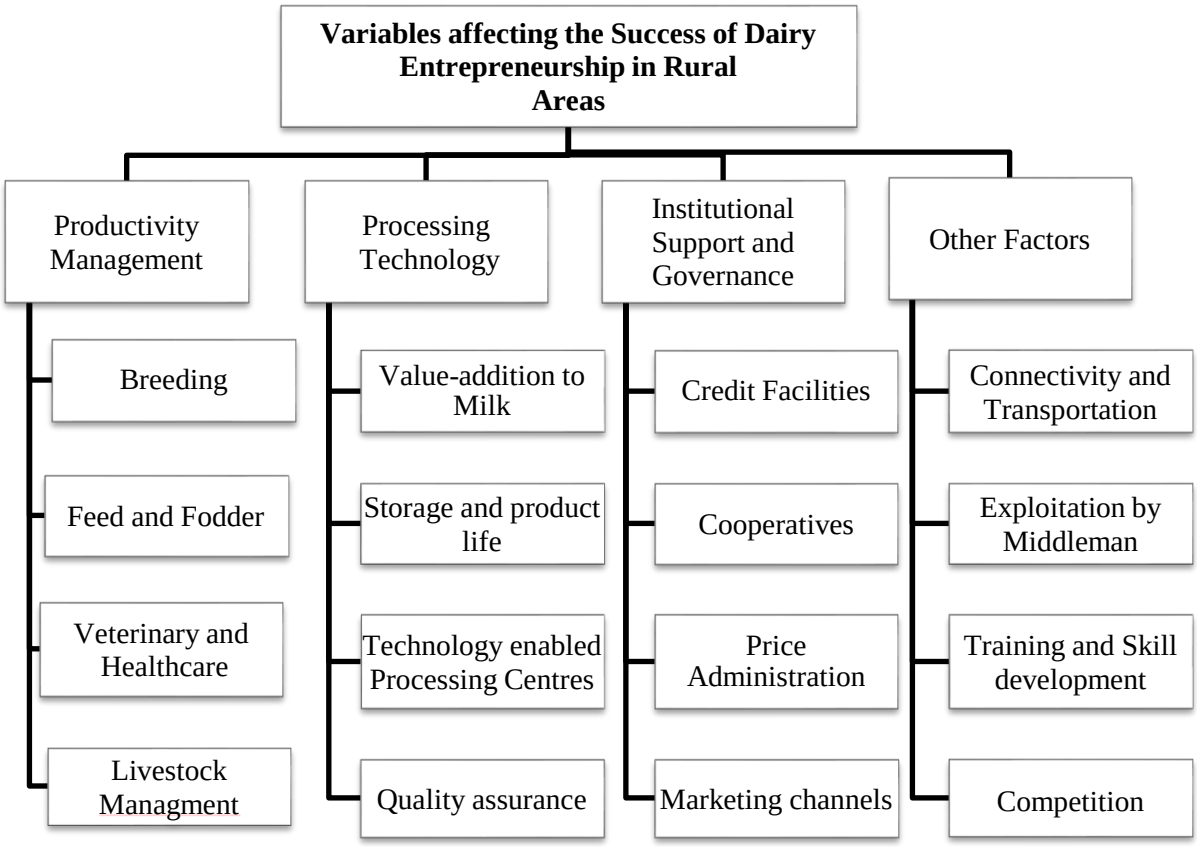

Figure 2: Conceptual Framework of Variables affecting the Performance of Dairy Entrepreneurship in Rural Areas

SECTION 4: NEED OF THE STUDY

The rural population is mostly dependent on non-reliable, irregular, weather-based agricultural income. The income from agriculture is sufficient to meet less than half of the total income requirement of the family. The remaining half mostly comes from daily wage labour work. There has not been any reasonable raise in the agriculture income in Madhya Pradesh, Chhattisgarh and Rajasthan. Hence, it is necessary to explore the alternative sources of income which provide sustainable year-round income to the landless, marginal and small farmers. The dairy entrepreneurship is likely to play a significant role in this area. The review of the previous researchers indicates that no formal study of dairy entrepreneurship has been carried out in the district Harda of Madhya Pradesh.

SECTION 5: RESEARCH GAP

The previous researches conducted in the area of Dairy Entrepreneurship reflect that a comprehensive approach that attempted to unearth the potential of Dairy Entrepreneurship in remote rural areas of the

country is very scanty. The impact and contribution of emerging dairy technologies on the rural landscapes, in terms of generating livelihood opportunities and also providing the food security of the rural population has not been attempted so far. The present investigation may aid in fulfilling these critical gaps.

Harda has more than 70% rural households, which provides a sufficiently large sample to produce reliable estimates of most indicators for rural areas **(IIPS, National Family Health Survey 2015-16)**. However, so far barely a very few formal studies have been conducted in the district and absolutely no doctoral research studies have been conducted so far in the area of Dairy Entrepreneurship in district Harda.

A majority of the rural population of district Harda and Madhya Pradesh (72.9%) is engaged in agriculture activity **(NSSO, 2014-15).** Since the agriculture activities are mostly weather dependent and the marginal farmer has more dependence on natural resources/inputs only, there is a need to diversify the income risk undertaken by the marginal farmer by introducing alternative sources of income. A survey by the National Sample Survey Organisation on the indebtedness of farmers shows that of the 64 lakhs farmers in Madhya Pradesh, 32 lakhs are in debt. Dairy entrepreneurship has the potential to be a good option for income generation and diversification in district Harda and other rural areas in general; however, no formal research or study has been conducted so far to evaluate the challenges and prospects of Dairy Entrepreneurship in district Harda. Additionally, the effect of modern technological, management and marketing interventions in Dairy Industry have not yet been evaluated sufficiently at the remote rural areas so far. The proposed study is aimed at filling this gap.

SECTION 5: RESEARCH OBJECTIVES

The following objectives have been framed for conducting the present research:

1. To examine the present impact of dairying on the socio-economic status of the entrepreneurs in the rural areas.
2. To examine to role of dairy cooperatives in the performance of dairy entrepreneurs
3. To study the challenges and opportunities of dairy entrepreneurship in rural areas.
4. To carry out a Case Study of a successful dairy entrepreneur.
5. To perform a Comparative Analysis of a struggling and successful dairy entrepreneur in selected area through a benchmarking study.

SECTION 6: RESEARCH HYPOTHESIS

Based on the objectives formulated for the study, the following null hypotheses are being proposed:

$H_0$1: The dairy entrepreneurship has no significant role in the improvement of the socio-economic status of the rural areas.

$H_0$2: Dairy Cooperatives do not play a significant role in development of dairy entrepreneurship in rural areas.

$H_0$3: Dairy Technological interventions do not have an important role in development of dairy industry in rural areas

$H_0$4: Dairy entrepreneurship does not contribute significantly to generation of sustainable livelihoods in rural areas.

SECTION 7: RESEARCH METHODOLOGY

7.1 Area of Study: District Harda, M.P. in Madhya Pradesh, 72% of the total population lives in rural areas. Harda has more than 70% rural households, which provides a sufficiently large sample to produce reliable estimates of most indicators for rural areas **(IIPS, National Family Health Survey 2015-16)**. More than 50% of the district population belongs to Scheduled Tribes (ST) and Scheduled Caste (SC) communities. Hence, Harda district is chosen for the intensive study in the present investigation. Harda has a total population of 5,70,465 persons. The district is further divided into six Tehsils namely Harda, Khirkiya, Handiya, Sirali, Rehatgaon and Timarni.

7.2 Sampling Plan

Figure 3 : Maps of Harda Tehsil (Source: www.map.india.com)

7.2.1 Sample Size: - Sample size is calculated by using Bill Gordon's formula. According to this formula level of confidence taken as 95% and confidence interval as 5%, researcher has calculated a sample size as 384 units. Accordingly, 384 dairy entrepreneurs will be selected from district Harda for this study.

7.2.2 Sampling Frame: Sampling frame for the study consists of all six tehsils as represented in the map below.

7.2.3 Sampling technique: Since the number of total dairy entrepreneurs in the district is unknown and there are no public records available, Snowball Sampling technique will be used to select the sample. It is non-probability sampling technique where existing study subjects recruit future subjects from among their acquaintances. The technique is best suited when the target population is unknown or the records are inaccessible for the researcher.

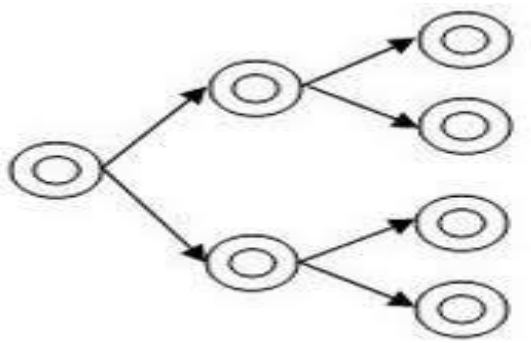

Figure 4: Flow of Sample Selection Process under Snow Ball Sampling

7.3 Research Design: A descriptive research design will be applied using survey method.

7.4 Data Collection Instruments:

7.4.1 Primary Data: Semi-structured questionnaire and interview schedule will be used to collect the primary data from the respondents.

7.4.2 Secondary Data: Data will be collected through various magazines, journals, publication of marketing research agencies, newspapers, annual reports, international agencies etc.

7.5 Statistical Tools for Data Analysis

Relevant statistical tools for analysis like regression, correlation, chi-square test, descriptive statistics etc. will be used. In order to identify the factors affecting the prospects of dairy entrepreneurship a chi-square test will be applied. Analysis of Variance (ANOVA) will be used to test the hypothesis to assess whether the variables have significant difference or not. Correlation analysis will be applied to

examine strength of relationship between the variables of dairy entrepreneurship. Likewise other statistical techniques will be applied as per the need.

SECTION 8: Chapterization

The proposed study will contain the following chapters:

- Chapter 1: Introduction
- Chapter 2 – Review of Literature
- Chapter 3 - Research Design and Methodology
- Chapter 4 - Data Collection and Analysis
- Chapter 5 – Case Study
- Chapter 6 – Results and Interpretations
- Chapter 7 – Conclusion
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